

**WHAT IS CLAIMED IS:**

1. A vessel filter comprising a first filtering portion and a first anchoring portion, a transverse dimension of the first filtering portion in an expanded configuration being less than a transverse dimension of the first anchoring portion in an expanded configuration, and a second filtering portion and a second anchoring portion, a transverse dimension of the second filtering portion being less than a transverse dimension of the second anchoring portion, the first and second filtering portions being positioned closer to each other than the first and second anchoring portions, and the anchoring portions being formed on first and second opposite portions of the vessel filter.
2. The vessel filter of claim 1, further comprising a sleeve positioned between the first and second filtering portions.
3. The vessel filter of claim 2, wherein the filtering portions and the anchoring portions are formed by three wires.
4. The vessel filter of claim 1, further comprising a first anchoring member extending from the first anchoring portion and a second anchoring member extending from the second anchoring portion.
5. The vessel filter of claim 4, wherein the filtering and anchoring portions are formed by three wires, the first and second anchoring members each having a lumen to receive one of the three wires and each further having first and second opposing sharpened ends for engaging the vessel wall.
6. The vessel filter of claim 5, wherein in a collapsed configuration of the vessel filter the three wires are in an elongated configuration, substantially parallel to a longitudinal axis of the filter.

7. The vessel filter of claim 2, wherein the transverse dimensions of the first and second anchoring portions are substantially equal and the transverse dimensions of the first and second filtering portions are substantially equal.
8. The vessel filter of claim 7, wherein the each of the filtering portions progressively increases in diameter towards its respective anchoring portion.
9. A surgical apparatus comprising a vessel filter having a first portion, a second portion and an intermediate portion between the first and second portions, the first portion increasing in diameter from the intermediate portion towards a first end, and the second portion increasing in diameter from the intermediate portion towards a second end, a region closer to the intermediate portion forming a filter portion.
10. The apparatus of claim 9, wherein the filter is formed by at least one wire, each wire forming a part of the first, second and intermediate portions.
11. The apparatus of claim 10, further comprising a retaining sleeve at the intermediate portion to retain the at least one wire.
12. The apparatus of claim 11, further comprising a tubular anchoring member extending from the first and second portions and having opposing sharpened ends to engage the vessel wall.
13. The apparatus of claim 9, wherein the filter is composed of shape memory metal.
14. A method of implanting a vein filter in the inferior vena cava of a patient comprising:  
inserting through a femoral vein, superior vena cava or an internal jugular vein a catheter having a filter positioned therein in a collapsed configuration so that a first, second and third wire of the filter are in a substantially elongated configuration;

delivering cold saline into the catheter to maintain the filter in the collapsed configuration;

releasing the filter from the catheter to enable the filter to move to an expanded configuration in response to warming by exposure to body temperature, in the expanded configuration a pair of mounting portions expand to a first diameter and a pair of filter portions expand to a second smaller diameter.

15. The method of claim 14, further comprising the step of opening a valve to enable infusion of cold saline into the catheter.

16. The method of claim 14, wherein the step of releasing the filter initially ejects a first of the pair of mounting portions and a first of the pair of filter portions.

17. The method of claim 14, wherein the step of releasing the filter comprises withdrawing the catheter to expose the filter.

18. The method of claim 16, wherein the step of releasing the filter comprises withdrawing the catheter to expose the filter.